



APHIS

Aquaculture Industry Report

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United States Department of Agriculture • Animal and Plant Health Inspection Service

The primary goal in producing and distributing the Animal and Plant Health Inspection Service' (APHIS) Aquaculture Industry Report is to keep aquaculture producers informed of what APHIS is doing to support this growing industry. APHIS' mission is to promote the health of animal and plant resources, to facilitate their movement in the global marketplace, and to ensure abundant agricultural products and services for U.S. customers. This report highlights activities and developments throughout APHIS' broad base of services that address how plant pests and weeds, wildlife depredation, fish biologics, and animal health certification affect aquaculture.

Wildlife Services (WS)

Cormorant Roost Dispersal Program

APHIS WS coordinates a double-crested cormorant roost-dispersal program across a 7,500-mi² area in the Mississippi delta designed to reduce cormorant depredation to commercial fish stocks. Several hundred individuals, including aquaculture producers, sportsmen, government employees, and concerned citizens, participated in the 1998-99 dispersal program. From October 1998 through April 1999, cooperators monitored 75 cormorant night roosts and dispersed resident birds. Workers employed nonlethal harassment techniques to relocate cormorants from catfish-production areas to other locations along the Mississippi River.

When the cormorants were relocated to sites near the water, the birds tended to forage on abundant native fish species instead of commercially raised fish stocks. At times, the dispersal program reduced cormorant populations within the catfish-production region by as much as 75 percent.

Protecting Salmon

In Washington, WS is working to protect the State's threatened and endangered salmon from predators. So far this year, WS has hired seasonal employees to catch squawfish before they feed on vulnerable salmonid smolts migrating to sea. Wildlife biologists have installed overhead wires on most dams to reduce gull predation on salmonid smolts as they pass around hydroelectric plants. WS biologists also work with hatcheries to exclude otters and other predating animals from their waters and raceways.

Veterinary Services (VS)

APHIS Situation Report

This summer, APHIS VS has drafted a report regarding the status of whitespot shrimp syndrome virus (WSSV) in the wild and on farms. A copy of the situation report in its entirety has been posted to the APHIS Aquaculture Website at www.aphis.usda.gov/vs/aqua/aquaphis.html. (Click on the first entry under "Hot Topics.")

The situation report focuses on potential impacts of imported frozen shrimp on U.S. shrimp aquaculture, in order to complement ongoing efforts by parties currently assessing other transmission pathways and the potential risk to North American species. Imported frozen shrimp are one of numerous pathways by which WSSV can be transmitted to U.S. farmed shrimp. In 1998, the United States imported over \$1.3 billion worth of frozen shrimp, wild and farmed, from Central and South America. All U.S. shrimp exports, frozen and nonfrozen, were valued at \$94 million that year.

Increasing consumer demand for shrimp continues to attract imports and also to increase frozen shrimp volumes that are processed at U.S. packing plants. If birds come in contact with contaminated waste or effluent from a shrimp packing plant, they may perpetuate an ongoing epizootic by moving the virus to nearby aquaculture facilities. Effluent discharge and the accidental use of WSSV-infected shrimp as bait are two direct pathways for virus transmission to wild shrimp stock and also increase risk to farmed shrimp. Farmed and wild shrimp in the United States are highly susceptible to WSSV, and researchers have also isolated the virus in other crustacean species, including crawfish and crabs. Although farmed shrimp aquaculture is a small piece of total U.S. shrimp production, the United States is a recognized world leader in providing expertise in intensive and semi-intensive shrimp farming.

In January 1999, WSSV was detected in tissue samples from shrimp farms in Nicaragua, Honduras, Guatemala, and Panama. This detection is the first confirmed occurrence of WSSV on the Pacific coast of the Americas. In February, VS learned that yellow head virus (YHV), another virulent shrimp pathogen indigenous to Asia, was also present in the Central American samples. However, the presence of YHV remains unconfirmed. Although WSSV poses no danger to human health, the virus has a history of causing catastrophic economic losses on shrimp farms. Its presence is considered a potential threat to shrimp industries in Latin America

and the United States because WSSV is not indigenous to this hemisphere. Nicaragua, Honduras, and Guatemala together produce about 8 percent of the Western Hemisphere's total farm-raised shrimp, roughly equal to 3 percent of the world's farmed shrimp. Most of this material is destined for the U.S. market.

APHIS and its partners can help limit the further spread of WSSV to U.S. aquaculture by (1) reviewing the existing import controls relevant to frozen and fresh shrimp from Central America to clarify their effectiveness in preventing U.S. imports of shrimp carrying WSSV; (2) promoting proper waste heating and disposal, and safe release of effluents, by U.S. packing plants that process crustaceans; (3) informing U.S. producers of shrimp, crawfish, and crab about the current outbreak and its implications and being prepared to inform U.S. consumers; (4) assessing the need for Federal policy or guidelines to promote greater uniformity in diagnostic methods and technical standards; and (5) developing an APHIS protocol to certify live larvae and broodstock as free of specific viruses.

National Aquaculture Training Course

In May, 24 APHIS veterinary medical officers (VMO's), made up mostly of VS aquaculture coordinators, attended an APHIS-sponsored training course on the diagnosis of diseases in aquaculture species of concern, held at the North Carolina State College of Veterinary Medicine. This was the first time the subject of invertebrate diseases was taught with live specimens of shellfish. The 4-day program covered species, systems, epidemiology, and water quality and included diagnostic workups on major external parasites and major internal pathogens. Attendees also took three onfarm field trips. The VMO's earned 35 hours of continuing education credit.

Your One-Stop Shop for Regulations

APHIS VS has set up a new Website designed to make all State aquaculture regulations just a click away from your desktop. The Website presents hotlinks that take users to each individual State's Website where regulations are posted. Now, rather than searching out each State's regulatory Website, you can visit the APHIS site and move directly to much-needed regulatory information. Our Website is still growing, and APHIS plans to add links to international regulatory sites soon.

The APHIS aquatic animal link Website is now available at www.aphis.usda.gov/guidance/regulations/animal/state/aquatic/

For more information about the Website, contact Susan Coburn at susan.k.coburn@usda.gov or call (970) 490-7961.

VS Aquaculture: A Year in Review

In fiscal year (FY) 1998, APHIS received two protocols requesting voluntary certification and inspection programs for the States of Idaho and Maine. Both are pending. APHIS approved three laboratories for diagnostic services for export certification at the Maryland Department of Agriculture, the Pennsylvania Department of Agriculture, and the University of Arkansas at Pine Bluff. (Washington, Alaska, and California were previously approved.)

Voluntary certification and inspection programs have been established in Washington (1994), Alaska (1994), California (1996), Maryland (1997), Pennsylvania (1997), and Arkansas (1997).

Also in 1998, APHIS conducted one regional aquaculture training course in VS' Western Region. The Salmonid Disease Workshop covered viral, bacterial, and parasitic disease of salmonids along with immunology, cell cultures, and histology. The basic training courses are designed to prepare VMO's and accredited veterinarians to perform onsite farm inspections, determine water quality, identify anatomy, recognize clinical diseases and their treatments, and perform proper sample preparation, collection, and shipment to an approved APHIS laboratory.

From FY 1994 through FY 1998, APHIS endorsed health certificates for a total of over 300 million fish eggs exported to countries such as Chile, Columbia, Greece, Korea, and Japan. Fish species currently being certified include rainbow trout, Donaldson steelhead trout, Atlantic salmon, and coho salmon. APHIS also endorsed certificates to permit the shipment of more than 3.8 million live (ornamental) fish to 47 different countries.

Emerging Disease and Trade Restrictions Issues

Infectious Salmonid Anemia Virus (ISAV)

Concern has been heightened over the possible introduction of ISAV into the United States via infective Canadian salmonid pen sites off the west coast of Deer Island in Cobscook Bay, New Brunswick, Canada. Deputy Administrator of Veterinary Services Alfonso Torres has directed that VS establish a working group to coordinate prevention activities. The group will address several issues, including vaccine development, control of imported fish waste, monitoring for ISAV, clarity of APHIS authority, and laboratory diagnostics at the National Veterinary Services Laboratories.

Although the disease is not yet listed as a notifiable disease of the Office of International Epizootics (OIE), outbreaks of the disease have occurred in many countries. It was first reported in Norway in 1984 and reached peak incidence in 1991. As of 1998, Norway had 13 sites found positive for ISAV (24 farms in 6 counties). In 1996, the disease was first recognized in North America in New Brunswick salmon net pens. In 1998, the United Kingdom reported 10 infected farms with 15 more suspected of harboring ISAV. In each outbreak, all infected stocks were slaughtered.

Mexico Emergency Rule Affects U.S. Shrimp

On March 19, Mexico published emergency regulations that place restrictions on the importation of certain aquacultural products in order to avoid an incursion of WSSV. The rule appears to be affecting U.S. shrimp exports to Mexico. A bilateral committee has been formed to discuss the trade implications associated with this matter. APHIS is now being asked about its role with shrimp regulations as well as testing and inspection in the event Mexico ships the shrimp back to the United States.

A brine shrimp farmer recently had his live product shipment delayed and later rejected even though it had been tested in the United States and found free of the viruses in question. The farmer was told by Mexican officials that he needed a Government-endorsed health certificate.

Office of International Epizootics

The OIE has adopted a resolution to amend the List of Diseases Notifiable to the OIE (LDNO) and the List of Other Significant Disease of Aquatic Animals (LOSDAA). The resolution calls for the:

- Inclusion of the two agents—European catfish virus and European sheatfish virus—as causative agents of the notifiable disease epizootic haematopoietic necrosis,
- Addition to the LOSDAA of fish red sea bream iridovirus disease and white sturgeon iridovirus disease,
- Addition of Taura syndrome to the LDNO,
- Transfer of WSSV and YHD from the LOSDAA to the LDNO,
- Addition of crustaceans spawner-isolated mortality virus to the LOSDAA, and
- Modification of the Code and Manual chapters accordingly.

Potential Regulation of Farm-Raised Fish

Earlier this summer, APHIS sought comments on the potential regulation of farm-raised fin fish. Currently, APHIS provides the U.S. aquaculture industry with several services. However, APHIS does not enforce regulations to protect the industry from harmful exotic pests and disease. Including farm-raised fin fish in the regulations would address this situation and enhance the global marketability of U.S. aquacultural products.

The notice seeking comments appeared in the May 4 Federal Register under docket number 98-085-1. APHIS documents published in the Federal Register, and related information, including the names and organizations and individuals who have commented on APHIS rules, are available on the Internet at www.aphis.usda.gov/ppd/rad/webrepor.html. The comment period ended July 6, 1999.

Aquaculture Briefs

Fish farming is on the rise in Wisconsin. Sales of fish raised on Wisconsin farms are expected to grow nearly 60 percent in the next 5 years. In the last 10 years, the number of fish farms has jumped from 150 to 265. These farms raise fish for food, bait, and restocking.



The Global Aquaculture Alliance, a trade organization for fish and shellfish farms, has posted a list of the countries in Central America where WSSV has been confirmed along with a brief history of the virus and suggested management strategies. The Website address is www.gaalliance.org.



APHIS VS is releasing a draft of the its Strategic Plan for industry review and comment. Copies of the plan can be requested from Sharon Malachi at (301) 734-6954 or via e-mail at otis.miller@usda.gov.

Editor's Note

In the previous Aquaculture Industry Report, the Salmonid Disease Workshop was mistakenly reported to have been held at the University of Oregon. Actually, the course was offered by Oregon State University and held at the Hatfield Marine Science Center in Newport, OR.

To contribute information or to be added to the mailing list for this report, contact:

Jim Rogers
USDA-APHIS, Legislative and Public Affairs
4700 River Road, Unit 51
Riverdale, MD 20737-1232
jim.d.rogers@usda.gov